

Application No. 10/767,530

Amendment Date August 13, 2008; Reply to Office action of May 14, 2008

## Remarks/Arguments

Applicant appreciates the feedback received from Examiner Mohr in the Office communication mailed May 14, 2008.

### Claim Rejections – 35 USC §103

Claims 7, 11 and 14 are cancelled. Claims 6, 8 and 12 are amended to overcome Examiner Mohr's rejections.

The detailed arguments for each of the remaining claims are as follows:

#### Claim 6:

As detailed in our February 11 2008 response, Braspenning discloses an image segmentation method by determining hard border fragments in the digital image and forming segments by determining for each pixel its closest side. Braspenning does not disclose neither does he suggest adaptive image region partition method.

Examiner Mohr stated that Richards discloses a method of partitioning an image into multiple regions each containing one component (atom) in an adaptive manner (pages 445-450) using attributes associated with each atom, these attributes including a distance metric (atomic radius) (P441).

Upon careful review, it becomes clear that Richards method is totally different from the current invention. Richards describes different partition procedures based on different methods for planes dividing the interatomic vectors (1) Voronoi, (2) Richards' method and (3) radical plane (P.448). All methods are vertex based (Fig 2. P 445). Richards' method is a modified procedure to the Voronoi method where the planes defining polyhedron do not bisect interatomic vector but cut it in a ratio which depends on the van der Waals or covalent radii of the two atoms involved (P. 449) vertex error problem

Radical plane method is not mathematically accurate. The radical plane is the locus of points from which the tangent length to the two sphere are equal. The procedure employs only a single atom characteristics. Thus, the distinction between different TYPES of interaction is not possible (p. 450).

The adaptive image region partition method of our invention creates image region partition adaptively based on the underlying component characteristics. Our unique advantages are as follows:

(1) The region can be adaptively partitioned base on different component types or other characteristics (not just "size") is unique to our invention and it yields great advantage over prior art methods. For example, a "Police car" type could have much greater region

Application No. 10/767,530

Amendment Date August 13, 2008; Reply to Office action of May 14, 2008

partition allocation than "Delivery truck" even if the truck is larger than the car base on "size".

(2) The adaptive partition is accomplished by applying a distance metric depending on component characteristics. It is not a vertex based method and is stable (no vertex error problem) and can be efficiently implemented by a two-pass method. Specifically, a component specific weighting factor,  $W(c)$ , is applied to the original length function for adaptive image region partition. That is,

$$l[(i,j),Z(i,j)] = l(i,j) * w(Z(i,j))$$

Where  $w(c)$  is not only related to the size of the component but also other factors such as the confidence or the types of the components.

Recognizing that the previous claim 6 may not have described our unique invention specifically to reflect the patently distinctive difference between our invention and Braspenning and Richards, we amended the claim to add limitations based on our unique inventions as follows:

"a component specific weighting factor  $W$  is applied to a length function to generated a component weighted length:  $l[(i,j),Z(i,j)] = l(i,j) * w(Z(i,j))$   
Wherein  $w$  is a general function of component characteristics that could be related to component size or other factors such as confidence or types of the components.

The applicant respectfully submits that the amended claim 6 clearly describes our unique invention which is patently distinctively different from Braspenning and Richards and in combination.

#### **Claim 8:**

We clearly referred to "based on the component weighted length" for our unique invention.

The applicant respectfully submits that the amended claim 8 clearly describes our unique invention which is patently distinctively different from Braspenning and Richards and in combination.

#### **Claim 12:**

As detailed in our February 11 2008 response, Cong discloses a cell image shape extraction. A slow watershed method is used for cell segmentation.

*Application No. 10/767,530*

*Amendment Date August 13, 2008; Reply to Office action of May 14, 2008*

This invention takes advantage of the fast two-pass ZOI creation method using component labeled image for cell segmentation. This is unique and patently different from Cong.

To overcome Richards, we also incorporate the changes similar to that of amended claim 6

The applicant respectfully submits that the amended claim 11 clearly describes our unique invention which is patently distinctively different from Cong and Richards and in combination.

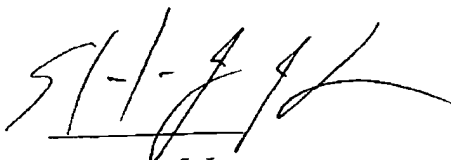
### **Conclusion**

In view of the above remarks and arguments, applicant submits that the amended claims are patently over the prior art and the relevant claim rejections under 35 USC §103 are overcome. Therefore applicant submits that this application is in condition for allowance, which action applicant respectfully solicits.

### **Conditional Request for Constructive Assistance**

If for any reason this application is not believed to be in full condition for allowance, Applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to MPEP para. 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,



Shih-Jong J. Lee